Fig. 14. *Macronema polygrammatum*, M'Lach., ♂, wings.
15. *Macronema digramma*, M'Lach., ♂, wings.

PLATE IV.

Fig. 16. *Hydropsyche colonica*, M'Lach., ♂, appendices, from side; 16 *a*, extremity of penis, from side, more enlarged.
17. *Hydropsyche mauritiana*, M'Lach., ♂, appendices, from side; 17 *a*, extremity of penis, from above, more enlarged.
18. *Hydropsyche modica*, M'Lach., ♂, appendices, from side; 18 *a*, extremity of penis, from side, more enlarged.
19. *Smicridea fasciatella*, M'Lach., ♂, neuration of wings; 19 *a*, maxillary palpus; 19 *b*, appendices, from side; 19 *c*, ♀, extremity of abdomen, from side.
20. *Smicridea saucia*, M'Lach., ♂, neuration of wings; 20 *a*, appendices, from above.
21. *Smicridea murina*, M'Lach., ♂, neuration of wings; 21 *a*, app. inf., much enlarged; 21 *b*, ♀, extremity of abdomen, from side.
22. *Tinodes consueta*, M'Lach., ♂, neuration of wings; 22 *a*, appendices, from above; 22 *b*, the same, from side.
23. *Agapetus celatus*, M'Lach., ♂, neuration of wings; 23 *a*, extremity of abdomen and appendices, from side.

Notes on the White-beaked Bottlenose, *Lagenorhynchus albirostris*, Gray. By JAMES MURIE, M.D., F.L.S., &c., late Prosector to the Zoological Society.

(PLATE V.)

[Read November 17, 1870.]

THE literature concerning this species of Dolphin dates from 1846, when Mr. Brightwell * figured a female taken near Yarmouth under the name of *Delphinus tursio*, but which Dr. Gray † immediately afterwards showed to be a species new to science, and named it as now known. Another contributor was Eschricht ‡, who described as *Delphinus Ibsenii* what appears either this identical species, or but a variety of it, distinguished by a somewhat narrower beak, smaller-sized and more numerous teeth. The venerable Nilsson adopted Eschricht's determination in the 'Scandinavian Fauna.'

* Ann. & Mag. Nat. Hist. vol. xvii. p. 21, pl. ii.

† *Ibid.* p. 35, pls. x., xi., and Zool. 'Erebus and Terror.'

‡ Kongl. Danske Selskab. Kjöbenh. 1847.

Van Beneden [*], in his "Recherches sur la Faune Littorale de Belgique," records the capture of two females, and describes their appearance, skeleton, intestinal canal, and organs of generation, figuring the same.

Matthias Claudius [†] published a memoir on *Lagenorhynchus* not long after, referring, I believe, to this and allied species; but I have not been able to get a sight of this paper.

Lilljeborg [‡], in treating synoptically of the Scandinavian Cetacea, gives notes on several skeletons in the Swedish and Danish Museums.

The specimen, a full-grown ♂, forming the subject of the present communication was captured on the south coast of England a few years ago and purchased by Mr. Gerrard for the British Museum. It was identified by that gentleman and myself as the *L. albirostris* of Dr. Gray. The skeleton is in the National Collection. The generative organs were saved by me, and are put up as a preparation among the physiological series in the College of Surgeons' Museum. Most of the viscera had been removed prior to receipt of the body.

1. *Dentition.*—In this adult male the numbers were—

$$\frac{24-23\ (+2\ \text{denticles})}{23-22}:\quad \text{in all}=94.$$

The four or five anterior teeth, both above and below, are small, and they increase in size to about the eighteenth. Between the eighteenth and twentieth the maximum of size is attained, those behind diminishing.

The greatest height of the teeth above the gums is 0·3 inch, the intervals between the teeth being about 0·2 inch. The teeth in the upper jaw are set nearly erect, with, however, a slight obliquity outwards; but the hindmost two or three incline somewhat backwards. The mandibular teeth have much the same direction.

The teeth of the upper jaw have somewhat of a lateral compression: their posterior surface is round, but their anterior one bevelled almost to a knife-like edge. The lower series of teeth fit into the upper set in such a way that the hind surfaces of the former are grooved and rub against the front surfaces of the latter. When the teeth are in opposition, there is an interval of

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[*] Mém. de l'Acad. R. Bruxelles, 1861, t. xxxii. pp. 1 to 38, pls. 1, 2.

[†] Dissert. de Lagenorhynchis. Killiae, 1853.

[‡] Ray Soc. 1866, from Upsala Univ. Arsskrift, 1861–62.

0·1 inch. The two rearmost teeth of the upper jaw are without opposing mandibular ones; and the two foremost teeth of the mandible are likewise free.

2. *Cavity of the mouth.*—Without exceeding the limits of a just comparison, this region might fairly be likened to an inverted funnel, inasmuch as it is relatively long, narrow, and V-shaped. In this respect it differs from the more rounded cavity of the blunt-nosed *Globiceps*; but so far as the lining of the mucous membrane is concerned there is a closer correspondence between these two Cetacean forms. There is this difference, however, or, rather, gradation, of structural change—that the rough anterior palatine patch is of a decided Λ figure in *Lagenorhynchus*, and runs back nearly as far as the twentieth tooth from the front. The roughened patches on the mandibular rami are also very strongly marked. The entire palate and faucial region are of a pale flesh-colour; and there is no distinct uvula, though, as in the "Deductor," the isthmus of the fauces is very much constricted and arched, whilst folds of membrane laterally bound it.

The palate is flat fore and aft, but, if anything, rather transversely concave. A lateral sulcus just within the gums, such as is well impressed in the Ca'ing Whale, barely (if at all) exists in the White-beaked Bottlenose. The interdental ridges, well pronounced in the former, are less prominent in the latter Cetacean.

The tongue is free at the tip for above an inch. In shape, as might be expected from the outline of the bony parts, it is much more narrow and pointed than in the Pilot Whale. Moreover, in the Bottlenose, it is a much softer organ. The dorsum is less smooth, and the edges crenulate.

The papillæ circumvallatæ are prominent. The frænal folds are numerous.

3. *Pharynx, Larynx, and neighbouring Structures.*—The pharynx at where the larynx arises is 3 inches in width. The channel is narrowed in front, and with a baso-median elevation behind, being sharper, at least posterior to the arytenoid cartilages. The lining-membrane is very rugose both longitudinally and laterally. The pharyngeal sphincter in this Bottlenose did not appear to grasp the larynx so firmly as in the Globiceps dissected previously by me. The larynx, which stands up, inclines to the left, causing the passage on its right side therefore to be the wider of the two, and leaving as much as, or more than, 2 inches of free space. The faucial mucous follicles are very numerous. These glands are large, some as much as ½ an inch long, and contorted.

In reference to the fleshy mass which grasps the vertical portion of the larynx, this in *Lagenorhynchus*, as in other forms, is attached to the basiocciput, inner sides of pterygoid plates, and the floor of the internal nares above the postpalatal plates. At the latter point there is a strong median glistening band. Above this the muscle divides and upwardly encircles each channel of the nares for a considerable way up. The direction of the fibres is completely circular below; and here they clasp the aryteno-epiglottic cylinder; above this they become more spiral, and superiorly assume a longitudinal direction. The result of this is that the muscle, as a whole, is an elevator and compressor.

The arytenoid cartilages project about 0·3 inch higher than the epiglottis; and they are separate, excepting a small portion at the upper end, which is firmly attached by intervening strong fibrous tissue.

Among the submucous tissues of the interior of the larynx at the root of the epiglottis, and just in front of what represents the corda vocalis, there appears to be a venous plexus of considerable thickness. The cylinder is longitudinally three-ribbed and sacculate inferiorly.

The hyo-epiglottic muscles have the same forward direction and general shape appertaining to the Grampus and Globiceps. Their origin is from the short proximal cartilages of the greater cornua. The fibres, fan-shaped, occcupy 1½ inch or thereabouts of the body of the hyoid, and, uniting from opposite sides, run upwards and backwards to the front of the epiglottis, ascending to about its middle.

The mechanical use of these fleshy planes is evidently to draw forwards the epiglottis; but, from the position and angle at which they lay on this, they seem hardly to have the effect of dragging the epiglottis and adjoining arytenoid cartilages flat on the surface of the œsophagus. Their true action, therefore, as I conceive, must be to steady these.

Each lateral half or individual muscle seems equivalent to its opposite in size; and apparently one cannot have more influence than the other in tractile power. Nevertheless there is a certain difference in the plane of obliquity of their relative positions which would render the greater power to the left moiety. By this unequal disposition of the lines of force the glottis would have more sinistral than dextral inclination, leaving one of the pharyngeal floors wider than the other, and thus, as far as consistent with the structures, obviating the narrowness of the alimentary channel by the presence of the upshot larynx.

Excepting in being moderately developed, the arytenoideus posticus and lateralis present no variation.

The hyoideus, a thick broad plane of fibres, is attached between the cornua. It is tendinous anteriorly, chiefly, however, on the inner side; and the fibres have a direction backwards and downwards: the outer ones are ranged in a different plane from those of the inside, being more perpendicular. It follows from this differentiation in the planes of contraction that, as with the intercostals, the resultant is a diagonal force.

4. *Articulation of the Lower Jaw.*—There is no definite or well-pronounced synovial membrane and sac. What may represent these is an intervening layer of softish fibro-elastic tissue about 0·1 inch thick, which, however, is in nowise separate or distinct from the general fibrous lining of the joint. I specially examined the parts with the object of observing whether any synovial fluid would exude on the fresh joint being cut into; but although the tissues were moist, nothing which I could identify as such exhibited itself.

Between the hollow for the lodgment of the condyle and this process itself there is a general lining of strong glistening fibres. These, at the moveable portion, are soft and yielding. Outside the joint is enwrapped, as it were, by a powerful fibrous investment, which partly interlaces or joins the interarticular fibres. The strongest band of exterior fibres, which would appear to represent the external lateral ligament of anthropotomists has a vertical direction or very slightly obliquely forwards and downwards. The attachment of this ligamentous bridge superiorly is the junction of the squamous and jugal bones, and inferiorly the anterior root of the condyle.

The fibrous substance of the socket or glenoideum merges into the temporal muscle above, and also by a continuation of fibres passes on to the venous network lying immediately on the inner side of the mandible.

John Hunter, in his memorable "Observations on the Structure and Economy of Whales" *, was the first to state of the groups in general that a thick ligamentous substance, with oily particles in the interstices, formed the mandibular articulation, a capsular ligament and double joint being absent.

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* Phil. Trans. vol. xvi. p. 314.

The next definite assertion as to the point from specific examination, that I know of, is that of Dr. Knox, who, in his 'Cat. Prep. Whale' (1828), says of his specimen No. 3, taken from *Balæna maximus borealis*=*Physalus antiquorum*:—"The preparation was cut out of the enormous mass in which the condyles of the lower jaw move; and, of course, all the surfaces presented to view are cut surfaces. The texture is distinctly fibrous; but the fibres are so intimately interwoven together as to defy any attempt to make out an exact arrangement. It did not contain much oil, and was cut with extreme difficulty, the most powerful knife making its way through it as through a portion of caoutchouc."

More lately, 1861, Eschricht and Reinhardt * announced their discovery in the fœtus and very young Greenland Whale, *Balæna mysticetus*, of a double synovial capsular inframaxillary joint, and supposed they "must also be found in older individuals of the same species."

Hunter's and Knox's observations, however, have been corroborated by Carte and Macalister† in the adult Pike Whale, *Balænoptera rostrata*.

It would seem, therefore, that in the adult stage at least three genera, two whalebone and one toothed Cetacean (*Physalus*, *Balænoptera*, and *Lagenorhynchus*), have no synovial capsular articulation of the lower jaw. Whether it exists in their fœtal and young condition and in other species is a matter of uncertainty, as is the reverse or its presence in the adult and old Right Whale.

The muscular structures which most powerfully influence the movement of the lower jaw are the pterygoides. The external one of these is strong, entirely fleshy, arises forwards almost within ½ inch of the last upper tooth; its mandibular insertion is around the inferior dentate foramen.

What represents the levator palati is strongly fleshy in front, narrowing very much behind, latterly ending in a fibro-tendinous portion, which is inserted into the post-inferior surface of the tympanic bone.

5. *The Blow-hole and its diverticular chambers.*—The external narial orifice or spout-hole has a breadth of 2½ inches. The front lip has a crescentic convexity forwards; but the hind one, with somewhat of a mesial peak, bluntly pouts forwards, so as to produce shallow bilateral concavities. The membrane within

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* 'Om Nordhvalhen,' Ray Soc. Transl. p. 85.

† Phil. Trans. Roy. Soc. 1868, p. 212.

the superficial margin is lined with dark pigment, and swept round by wrinkles. Eversion of the lips shows a cup-shaped spiracular cavity, on the anterior wall of which are two smooth-surfaced oval prominences meeting in the median line so as to form a V-figure; and these are connected by a strong fibrous septum to the posterior wall. They represent the alar fibrocartilages.

The anterior or premaxillary sac extends forwards 2·6 inches in front of the orifice of the blow-hole; or if the latter be included, and a post-extension of the spiracular cavity freely communicating with it, the measurement gives 4·4 inches in extreme length. The sac is slipper-shaped, as is common to the group; near its point it is $\frac{3}{4}$ of an inch in width, and expands behind to $1\frac{1}{2}$ inch. The interior mucous lining is pale-coloured and smooth-surface; but there is an appearance of submucous venous vascularity at the outer and inner margins.

The maxillary or upper lateral sac is, as usual, flask-shaped, and but 2 inches deep. What I have elsewhere* denominated the naso-frontal sac (the posterior sinus) burrows backward for $\frac{1}{2}$ an inch, and reaches forwards for as much. Its interior was in part choked up with a greasy-like firm mucous substance.

The muscles of the forehead and nasal region of *Lagenorhynchus* are in layers like those of *Phocæna*, *Grampus*, and *Globiocephalus*; but the difference in shape of the bony areas necessitates variation in the extent of the fleshy attachments. Compared with the latter round-snouted genus, the upper layer in the White-beaked Bottlenose reaches more anteriorly in front of the eye—in fact, is continued on to the end of the maxillary or cheek-process of bone. The manner in which it is fixed to the blow-hole aperture shows that its fibres have power chiefly on the upper wall of the maxillary sac; at the same time the muscle, being fixed in front and behind the blow-hole, must act as a complete dilator of the orifice when all the fibres act simultaneously.

The second layer is stronger than the superficial one. Towards the blow-hole it is very aponeurotic. From being radially attached round the outer wall of the maxillary sac, apparently it acts as a tensor of this cavity, whilst through it and by a direct attachment of fibres fore and aft it influences dilatation of the blow-hole. What particularly attracted my attention was the presence of a number of blood-vessels and nerves. These are situate between this and the upper muscle, towards their posterior aspects, and have a direction downwards and forwards. I presume them to be terminal branches of the temporal or supraorbital roots.

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* Camb. Journ. of Anat. and Physiol. vol. v. p. 125, fig. 1.

The third layer, as my drawing shows, is likewise fan-shaped, but less broad than the two preceding, and consequently diminished in maxillary attachment. Its upper tendinous insertion beneath the last is upon the lower surface of the sac; and fibres proceed to the deeper chink of the blow-hole, a small fasciculus going to the front of the orifice. The latter fibres appear therefore, by a pulley kind of action, to draw the centre of the blow-hole forwards; the others tract outwards and backwards; so that their combined force is a dilator of the upper narial orifice.

The anterior portion of the fourth, fan-shaped layer, compared with the others, is immensely strong. Its outer, semicircular border is fixed upon the upper surface of the maxillary bone, its malar portion to the anterior end. The muscle's posterior border, partially covered by that next to be described, is concave and looks upwards; its anterior border has a more sinuous sweep, and reaches over the premaxillary sac and the overlying blubber, joining as a bridged band its fellow of the opposite side. An aponeurosis also connects the upper hind border of the muscle with the naso-frontal sac.

As regards the use of the muscle, the front arch, in continuation with its opposite moiety, is a powerful compressor of the nasal blubber, and consequently a contractor of the premaxillary sac. Under certain conditions, also, the said transverse band may close the blow-hole. But, again, if the transverse fibres, which decussate slightly with those of the two superficial layers, act in conjunction with the latter, which seems not improbable, they then would have a tendency to open the blow-hole.

A longish, narrow, triangular muscle of moderate thickness lies posterior to the last, and, as said, partly overlapping it. The upward tendinous apex partially covers the naso-frontal sac, and, behind the mouth of the maxillary sac, winds narrowly round the bone, and is inserted in front of the nasals. Its main office seems to be to compress the posterior or naso-frontal sac.

The fifth layer more fully discloses the lateral and posterior sacs, inasmuch as the muscle or muscles lie outside or in front of these. The fleshy parts exposed may either be considered a double or a single muscle, the direction of the fibres being diverse but continuity indivisible. The posterior portion resembles the layers removed in being somewhat fan-shaped and lying upon the frontal outside, as far back as the naso-frontal sac. In front, with fibres of the second portion, it crosses the face aponeurotically and joins the muscle of the opposite side. The anterior second portion, naso-labialis, or premaxillary muscle, lies longitudinally the length of the beak, and sparsely coalesces at the mid line with its fellow of the opposite side. Above these is the deposit of blubber and superincumbent tissues; below a slight amount of fatty tissue and the premaxillary sacs.

Besides being a decided compressor of the premaxillary sac, the longitudinal layer last spoken of drags forwards and everts the anterior lip of the blow-hole; but the posterior fan-shaped moiety of the same layer, through its upper apical tendinous bridge and backwardly spread origin, influences retraction of the same points; and closure of the blow-hole is the sequence.

I have not figured in the drawings what constitutes a partially separate segment of the premaxillary muscle. So much are the fleshy fibres intermixed with fat that it resembles above all things a section of a well-larded tongue. It lies in front, and to some extent forms the fore wall, of the deep anterior sac. It arises from the præmaxilla opposite the last tooth, and is inserted just in front of the blow-hole. Use similar to the naso-labialis.

6. *Kidneys, Penis, and Pelvo-caudal parts.*—The two kidneys are not placed exactly opposite to each other, the right being slightly more forwards than its fellow. The former is 10½ inches long by 5½ broad; the latter is ½ an inch shorter. Although composed of an aggregate series of lobules, these are not simple and each distinctly separate as in *Globiceps*; for some of them, in groups of two and three, are partially fused together or coalesce. Such compound lobules have together but a single hilus and afferent duct. The vessels, as in *Grampus* and *Globiocephalus*, enter an inch below the upper end, and on the ventral or lower surface. The vein is most superficial.

The suprarenal bodies resemble those of the Porpoise, being homogeneous and firm in texture, and lying close to the renal veins, not adherent to the kidneys. Each is 2 inches long and 1 inch broad.

The penis has the usual elongate fusiform shape common to the

Cetacea*, the orifice terminal. The bulbo-cavernosi, retractores and erectores muscles are of enormous volume.

To give an idea of the enormous volume of the infracaudalis, the so-called psoas of some authors, I need but mention that its fleshy belly measured 51½ inches long, with a breadth at the root of 8 inches, and depth corresponding. Within the abdomen the diaphragm overlays it for more than a foot. The fleshy part, as usual, covers nearly the entire space upon and between the transverse process and the hæmapophyses or chevron bones. On reaching the forty-fifth vertebra, strong tendons emerge from its ventral surface; but latterly and above the fleshy belly narrows, and goes on to a point outside the sixtieth vertebra. The tendons spoken of, some twenty or more in number, run backwards, but are enveloped in an aponeurotic sheath, and separate one by one from this.

Two or three of the last upper tendons unite and constitute one strong thick cord. This proceeds back quite to the hindmost caudal vertebra, where it expands slightly in an aponeurotic form.

This is essentially a powerful flexor of the tail. The upper stronger tendons, carried to the tip of the vertebral column, act the part of a long lever, analogous to the shaft of a screw propeller. The inferior tendons act also on the tail, but in a different manner from the upper ones, inasmuch as, their attachment being from the middle of the chevron bones to the last of the hæmapophyses, their power is distributed. They nevertheless distinctly influence the movements of the caudal fin or tail through their enwrapping sheath, which is directly continued on to and intermingles with the glistening and dense fibroid tissue composing the horizontal tail itself. I have shown in *Physalus* and *Globiocephalus* how the tendons are packed and enwrap each other, both in a longitudinal view and transverse section; so I need add nothing further regarding them here.

The abdominal aorta is wide, its walls moderately thin, and, as in other Cetaceans, there are intercostal plexuses. The series of transverse branches which are derived from the aorta are situate about ½ an inch apart, and nearly equidistant from each other; the secondary divisions commence ¾ of an inch from the aorta. I noted that the proximal orifices of the intercostals are not widely circular, but transversely elliptical, and so placed towards the main feeder (*i. e.* proceed rather forwards at an acute angle) that the flow of blood into them is not direct with the aortic stream, but at a tangent from it. Besides oblique progression of the current, the shape of the opening must hinder speedy diversion of the blood's course.

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* *Vide* illustration of that of *Delphinus tursio* in Van Beneden's brochure "De la Composition du Bassin des Cétacés," Bull. Acad. Belg. 2nd ser. tome xxv.

Between the aortic branches there is a range of bean-like lymphatic glands.

A large artery and vein issue from beneath the posterior end of the paramastoid, and about ½ an inch forwards from this divide respectively into two branches.

The lingual artery, surrounded by veins, passes within the posterior end of the genio-hyoglossus and betwixt its two heads, being finally distributed to the substance of the tongue by superficial and deep branchlets.

The lingual nerve goes to the outer side of the genio-hyoideus, sends a small branch to the upper division of the muscle; and its main division, which again bifurcates, passes along the outer side of the genio-hyoglossus, ultimately ramifying on the outer side of the tongue.

7. *Fatty Covering and some Muscles of the Body.*—All the Cetaceans, I believe, are provided with a thick robe of fat.

In the body of *Lagenorhynchus* the adipose tissue is in two layers, viz.:—an upper, covering or superficial to the panniculus; and another, lying between that muscle and the deeper series, this being ½ inch in thickness. Besides, here and there fat fills the interstices betwixt fleshy parts. Excepting the superincumbent layer spoken of, it is to be observed that the spinal muscles are remarkably free from it, and so are the pectoral extremities; indeed the latter and the caudal region have a fibro-tendinous sheet which takes its place.

The sheet of the panniculus carnosus is extensive, at the scapula passing up and partly over the long spinal muscles; posteriorly it thins and narrows as it runs back towards the lumbo-caudal region. The latissimus dorsi, long and thin, becomes tendinous at the sixth rib, and terminates on the chest by tendons into the eleventh and twelfth. It touches the scapula as it passes to the humerus.

There is a thick and strong costo-coracoid muscle traversing from the first sternal cartilage to the scapula. A distinct levator anguli scapulæ is present, and a thin rhomboideus scapulæ, or a slip which diverges towards the head part of the levator anguli scapulæ, which I take to be such.

Muscles connected with the auditory canal are very distinct in *Lagenorhynchus* (as shown in my memoir on *Globiocephalus*, fig. 29). There is a retrahens aurem (*Ret.*), 2½ inches long and ¼ inch broad, with a somewhat vertical position; a short, thinner, and broader attollens (*Atl.*) in front and above the 2-curved external auditory tube. Also anteriorly, but lower than the latter muscle, there is a slip representative of an attrahens aurem (*Atr.*).

The serratus magnus has three costal digitations; its anterior insertion goes as far as the axis. A double scalenus obtains: the s. anticus, fixed to the cartilage of the first rib, is continued on to the skull; the s. posticus occupies the remainder of the first rib and proceds to the atlas. The longus colli is continued into the chest as far as the sixth dorsal vertebra. The triangularis sterni intervenes between six sternal cartilages. The external oblique clasps more or less all the ribs, a tendon being continued to the first. Its mesial fleshy abdominal border is 3 inches broad, and partially overlaps the outer border of the rectus. What I regard as the pectoralis major has an origin from the manubrium to the fourth-rib cartilage; its fibres thence converge to the proximal root of the fore limb. Whilst the long dorso-spinal muscle corresponds with that of the other Ceti, I may note that, from the close approximation of the numerous long divergent transverse processes, the intertransversales are short, but nevertheless strong; and this remark applies to the interspinalis. The rotatores are numerous. Short muscles lash together the chevron bones.

In the Porpoise, Stammius has named two small lateral muscles of the tail transversarius superior and transversarius inferior. The representatives of these in the White-beaked Dolphin are well developed. The upper one is longish, narrow, and fusiform. It lies above the transverse processes from the fortieth to the sixty-fifth or sixty-sixth vertebra, tapering at either end. The half is fleshy, the posterior half tendinous superficially in its upper half, and slightly muscular on its lower half.

The lower muscle corresponds in many respects with the preceding, but arises further forwards, and stops short a few vertebræ proximal of the other.

These two muscles are relatively weak lateral flexors of the spine.

DESCRIPTION OF PLATE V.

Fig. 1. Hinder segment of the head of the White-beaked Bottlenose (*Lagenorhynchus albirostris*), dissected to show the first or superficial fleshy layer, &c., connected with the blow-hole on the left side.

2. The same specimen, displaying the second layer.
3. The deeper third layer, maxillary sac, &c.
4. Fourth layer, from above downwards, in the same animal.
5. Undermost or fifth layer, naso-frontal sac, &c.

The lettering in these five figures agrees, and is as follows:—

B, through the arrow, points to the blow-hole; *m*, maxillary sac; *nf*, naso-frontal sac; *bl*, blubber and superincumbent tissues; *of*, occipito-frontalis; *Llsan*, levator labii superioris alæque nasi; *Lsp*, levator superioris proprius; *Z*, zygomatici; *Py*, pyramidalis, compressor nasi, &c.; *Dan*, depressor ali nasi, &c.; *Nl*, premaxillary muscle including naso-labialis, &c.; *Sp*, splenii; *Te*, temporalis.

Fig. 6. A view of the articulation of the lower jaw, the joint being partially opened.

c, condyle; *el*, external lateral ligament; *sq*, squamous; *j*, jugal; and *f*, frontal bones.

7. The opened mouth, looked into from in front. The jaws are dragged asunder much more than is natural even at full gape, so as to bring the faucial structures into view. *T*, tongue.

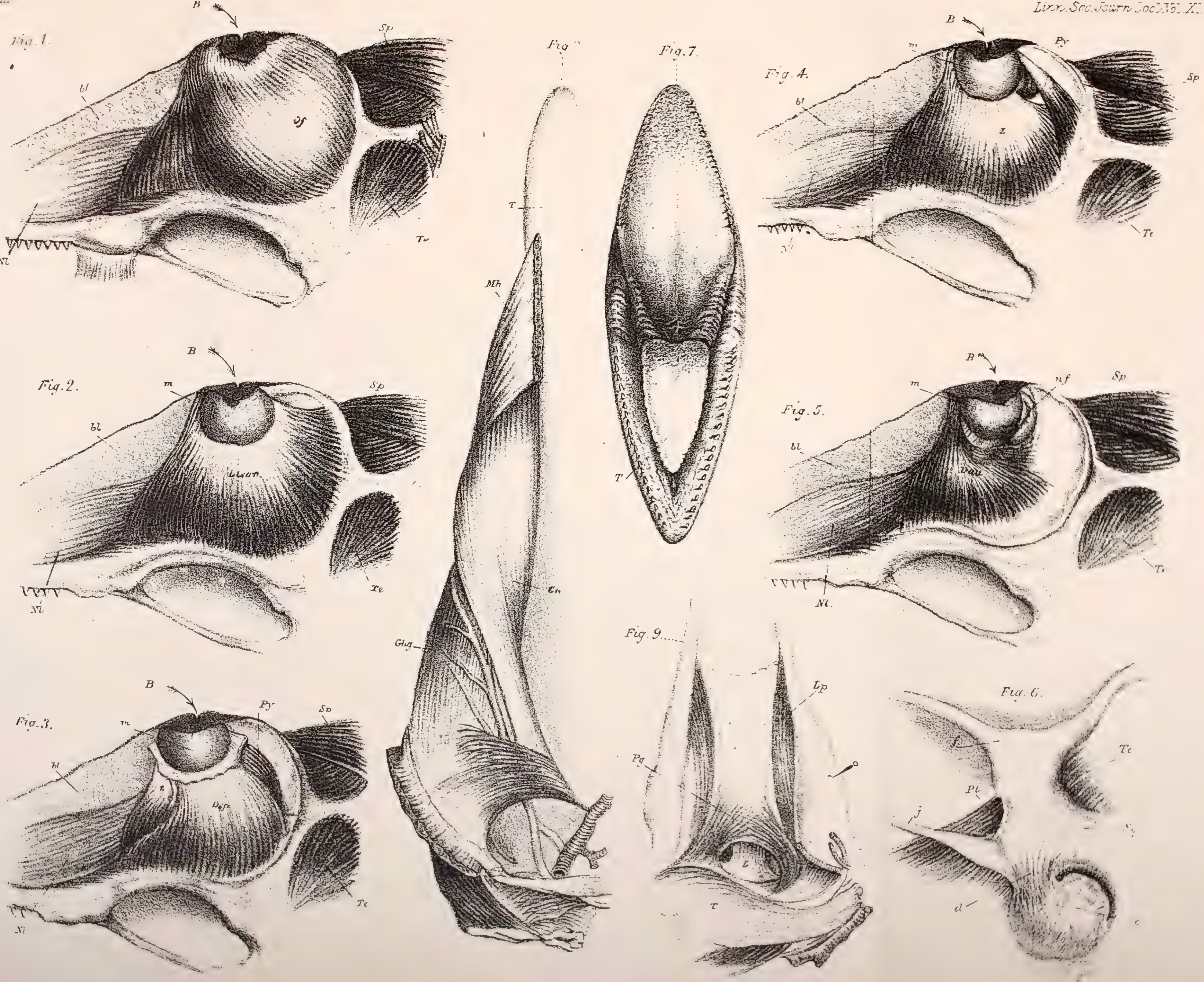
8. The under surface of the right moiety of the tongue and parts between it and the pharynx.

Mh, mylo-hyoid; *Gh*, genio-hyoid; and *Ghg*, genio-hyoglossus muscle; *T*, tip of tongue in outline.

9. Rough sketch of portion of the back of the palate and root of the tongue partially dissected.

L, upright laryngeal funnel; *Pg*, palato-glossus; *Lp*, levator palati; *T*, tongue.

Murie del.



[illegible] del et lith.

PARTS HEAD & MOUTH of LAGENORHYNCHUS ALBIROSTRIS, &c.

[illegible] imp.